UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
AT KNOXVILLE

LARRY L. WALKER and wife,
CYNTHIA WALKER

Plaintiffs

v.

NO. 3:07-CV-00377
JURY TRIAL DEMANDED

LOUISVILLE LADDER, INC.,

Defendant

AFFIDAVIT STANLEY A. KISKA, P.E.

Comes the Affiant, after being duly sworn and deposes of his own personal knowledge as follows:

1. My name is Stanley A. Kiska. I am a licensed professional engineer. I have a Bachelor of Science degree in Mechanical Engineering from Grove City College in Grove City, Pennsylvania. I have also taken post-graduate studies in Material Science, Mechanical Design Analysis, Finite and Element Analysis and Experimental Stress Analysis at Youngstown State University in Youngstown, Ohio. From 1985 to 2001 I was employed by Werner Company. During my work at Werner I was responsible for new product development as well as redesign of

EXHIBIT A

compliance with all design and performance requirements outlined by the applicable safety codes including the American National Standards Institute (ANSI). In addition, as a degreed, professional mechanical engineer while I was employed with Werner Ladder Company a substantial portion of my work for the company included the investigation of ladder accidents involving their products. When making these investigations, in addition to using principles of engineering and physics learned during my academic background, I relied upon forensic training received on the job at Werner. Over the course of more that twenty years, working at times with other engineers at Werner, other independent experts, as well as on my own, I have investigated hundreds of accidents involving climbing products.

2. In the course of my work at Werner Ladder Company, and in the course of my work as an engineering consultant working independently within

industry, I have approached each and every investigation of a reported ladder failure in the same manner. This has been to review all the information available to me, whether physical evidence or witness testimony, develop hypotheses as to how the accident may have occurred and to conduct testing and critical analysis which either proves or disproves these various hypotheses surrounding the events of the accident. Whether working as an in-house engineer for Werner Ladder Company, or working as an independent consultant, I have used exactly the same methods that an experienced ladder engineer would use in the practice of ladder engineering.

3. Before becoming involved in this case I was intimately familiar with the design of six-foot aluminum stepladders similar to the Davidson D-2316-06S, which is the subject ladder. I had designed components of similar stepladders and had on numerous occasions performed or supervised testing of similar ladders. Also, during the course of my work with Werner Ladder Company I had investigated numerous accidents or injuries involving stepladders. To assist the jury in understanding the issues involved the following terms or nomenclature may be important:

a. The type of product involved in this case is a self-supporting ladder most commonly referred to as a "stepladder," although sometimes it may be referred to as an A-frame ladder.

b. The "front" or "front section" of the stepladder is that side which is used for climbing. Most ladders, including the subject ladder, have only one climbing side and thus are intended to be used by only one person at a time.

c. The "back side" or "rear section" of a ladder is that side directly opposite the climbing side, and is typically not intended for or designed for climbing.

d. Each section, front and back, is supported primarily by its "side rails," which form the nearly vertical "legs" of the ladder. A slip-resistant pad typically covers the bottom of each leg, which is part of an assembly generally referred to as a "foot" or "shoe."

e. Ladder legs on the front section are connected by a number of evenly spaced "steps," which are horizontally oriented and designed to supply a degree of slip resistance. The step/platform located approximately 24 inches below the top of the front rails is regarded as the "highest (permissible) standing level." Any step located above that point is not intended for climbing or standing.

f. Rear section legs are connected by "horizontal braces" or simply "horizontals" or "braces," which do not necessarily share the same vertical spacing as the steps on the front section.

g. The front and rear components of the ladder are typically connected at a number of different points.

   i. The uppermost end of all four ladder legs are usually connected to a "top" or "top cap," which may be made of a variety of materials, but most commonly plastic or metal. Users are prohibited from using the top cap for climbing or standing.

   ii. Approximately midway between the top and bottom of the ladder, the front and back sections are connected to each other on each side (right and left) by a set of folding armatures called "spreaders." These enable the ladder to be opened and locked into an "A-frame" orientation for use, or folded for more convenient storage.

   iii. Some ladders are equipped with a shelf attached to the topmost rear section horizontal brace. This shelf that protrudes (generally) horizontally outward from the rear section for the benefit of supporting paint cans and the like

is most commonly referred to as a "pail shelf." If connected only to the rear section, it can be deployed or remain folded flush with the rear section at the user's discretion. On some ladders, as is the case with the subject model ladder in this case, the pail shelf may also be connected to the front section via additional linkages that cause it fold outward for use every time the ladder is opened into an "A-frame" orientation.

4. During my investigation of this case, I determined that the most likely explanation for this event was that the ladder exhibited a phenomenon known as "Inadvertent Walking." "Walking" in general is the process by which a four-legged ladder begins to flex and twist in response to uneven loading, ultimately resulting in the legs of one side shifting (typically forward) relative to their initial position. This twisting and shifting can result in the ladder transitioning from a position of four-leg contact with the ground to three-leg contact with the ground. Subsequent movements can cause further shifting and twisting of the ladder, causing various legs of the ladder to alternately be lifted off the ground and reset, all the while advancing a ladder forward (or backward) as if mimicking a walking motion. This twisting of the

ladder can result in a lateral shift of the rear section relative to the front section, commonly referred to as "racking."

5. While it is widely acknowledged by ladder manufacturers that ladders can intentionally be made to walk by a user manipulating the ladder directly with his hands, in order to purposefully move it from one work area to another without climbing off the ladder, manufacturers are reluctant to admit that this phenomenon can manifest itself inadvertantly, without the user's knowledge as the result of reasonably foreseeable actions on the part of the user while climbing or working from the ladder. This unintentional racking or walking may occur despite the consumer using the ladder in a manner in compliance with warning/instruction labels which accompany the ladder.

6. The walking phenomenon as described herein is relative to four-legged ladders, which are generally prone to walk or rack for two different reasons:

   a. A fourth leg is redundant for a ladder to be self-supporting.

   b. Four-legged ladders require a minimal amount of rotational (racking) flexibility to adjust to surfaces for which its support points are not all within the same geometric plane, in order to assure that all four legs can be supported. It is long been known

to all stepladder manufacturers that the less resistance to flexure and twisting a ladder exhibits, the greater its propensity to walk, either intentionally or unintentionally. A ladder's resistance to flexure and twisting is dependent upon its general design and bracing scheme, the resistance to twisting of its individual components, and the degree of relative movement that exists between those components. Generally speaking, the lighter the duty rating of the ladder and the lighter the weight of its components, the greater its propensity to flex, twist and walk under load.

7. In an effort to establish a quantitative measure of a ladder's propensity to walk, I have developed an experimental test called the "Induced Walking Test." The basis for this test is rooted in the American National Standards Institute (ANSI) Racking Test for portable stepladders, which also measures a ladder's resistance to twisting under an uneven loading. But unlike the ANSI Racking Test, the Induced Walking Test is designed to more closely mimic likely circumstances of use, in that:

a. It begins with all four feet initially on the floor,

b. The user loads are placed at the highest standing level,

c. Lateral forces are applied at the same level as the user load, and

d. Vertical measurements are made of the relative degree of instability that exists as a result of the test. The purpose of the test is to illustrate the propensity of the ladder to rack or walk under actual use conditions.

8. After subjecting an exemplar of the subject model D-2316-06S to the induced Walking Test, I have concluded that this model ladder is the flimsiest of any conventional 6-foot aluminum stepladder that I have tested to date. In my opinion this is due to the choice of components chosen to fabricate this ladder. While the ANSI standards specify a minimum step depth (front-to-back) of three inches there are no specifications for the width of the side rails in the ANSI standards. Most manufactures of conventional stepladders, however, utilize front side rails of approximately 3 inches to fully house the steps. In an effort to comply with the letter of the standard yet still cut costs to an extreme, the model ladder in question still uses a 3-inch step, but has reduced the size of its side rails to far less than three inches, thus affecting its ability to resist twisting and inadvertent walking.

9. I have prepared a video of a climbing demonstration which was conducted at the actual accident site. During the preparation of this

video I had the benefit of an exemplar ladder and the assistance of Mr. Walker in enabling me to position the exemplar at approximately the same location where the accident took place. I then climbed the ladder in a manner described by Mr. Walker during his sworn deposition. Then, while at the highest standing level, I shifted my weight to demonstrate the model's tendency to flex, twist and walk in response to a person's action on the ladder, despite the user's feet remaining essentially stationary as Mr. Walker describes. The purpose of the climbing demonstration was to recreate the events that led to Mr. Walker's injury and to demonstrate the propensity of this ladder to walk under normal use conditions.

10. I attach to this Affidavit Expert Disclosures.

Further deponent saith not.

Stanley A. Kiska

12-8-08

Date

Witness my hand and seal this 8th day of December, 2008.

NANCY PATRICIA HAVENS STATE OF TENNESSEE NOTARY PUBLIC MONROE COUNTY

Notary Public

My Commission Expires: 1-22-2011

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Fayetteville, NY 13066

INTEGRA ENGINEERING, P.C.

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October 17, 2008

W. Holt Smith
209 Tellico Street North
Madisonville, TN 37354

Re: Larry Walker vs. Louisville Ladder

Dear Mr. Smith,

Per your request, I offer the following report of my findings regarding the aforementioned matter.

QUALIFICATIONS

I earned a Bachelor of Science degree in Mechanical Engineering from Grove City College in 1985, and have been a licensed professional engineer since 1990. I currently practice as an independent engineering consultant on behalf of Integra Engineering, a consulting firm I established in 2001. Immediately prior to that I was employed as a Product/Senior Product Engineer for Werner Ladder Company for sixteen years. As such, I was responsible for the design, development and testing of climbing products. During my time with Werner, and now as an independent consultant, I have investigated hundreds of accidents involving climbing equipment on behalf of both defendants and plaintiffs. I also participate on two American National Standard Institute (ANSI) subcommittees/task forces, one of which I chair.

INFORMATION CONSIDERED

In the preparation of this report, I have reviewed the following documents received from your office:

- The Complaint filed in this matter,
- Louisville Ladder Responses to Plaintiff's First Request for Production of Documents,
- Louisville Ladder Responses to Plaintiff's Second Request for Production of Documents,
- Depositions of:
    - Larry Walker (March 12, 2008),
    - Lori Bremick (July 2, 2008),
    - Jessica Hudgins (July 28, 2008),
    - Donald Lee Gibson (August 15, 2008),
    - Anthony Huffine (August 15, 2008),
    - Santiago Veytia (August 15, 2008), and
    - Videotaped portion(s) of Larry Walker's deposition testimony.
- Davidson Full Line Catalog 2006-07,
- ANSI Safety Standards for Portable Metals A14.2-2000,
- Rationales for ANSI A14.1-1981 (Wood Ladders), ANSI A14.2-1981 (Metal Ladders), and A14.5-1981 (Reinforced Plastic Ladders) Safety Requirements for Portable Ladders,
- Product specifications (in Spanish) for the subject ladder,

- Inspection notes of Lori Bremick (dated 3/20/08), and
- Thirty photos taken at the accident site.

Additionally, I have reviewed Louisville Ladder catalogs from model years 2001 & 2003, I have inspected the accident ladder, accident site, and conducted testing on exemplar ladders to assess the performance capabilities/shortcomings of the subject ladder and alternative designs.

SUBJECT LADDER

This accident involved a Davidson model D-2316-06S six-foot, type III, aluminum stepladder. It was manufactured in Monterey, Mexico approximately March 2006. The ladder currently exhibits damage to the front and rear sections, the pail shelf arms and the spreaders. Damage to the front rails consists of significant localized deformation within the first two feet of the bottom, in addition to overall twisting of the section. Damage on the rear rails can be found along most of their lengths. The rear section is currently racked from left to right relative to the front section.

BACKGROUND

The ladder was purchased and maintained by Wartbug High School, where Larry Walker was employed as a janitor. On the day of the accident, Mr. Walker was asked to conduct a search for hidden tobacco/drugs above a drop ceiling in a boys' bathroom contained within an "Alternative" classroom. His inspection occurred during a lunch break, during which time only he and the teacher (Jessica Hudgins) were present in the room. Ms. Hudgins stood in the doorway of the bathroom and held the door open, while Mr. Walker opened and positioned the ladder and ascended to the third step. From here he removed a ceiling tile, slid it over top of an adjacent tile in the ceiling, then climbed one more step and conducted his inspection using a small flashlight that had been in his hip pocket. After a few minutes on the ladder and having finished looking over one portion of the ceiling area, it was his intent to step down, move the ladder to a different position and inspect the other portion above the ceiling. With the flashlight in his left hand and his right hand still on the wall, Mr. Walker was starting to come down. While moving his right hand from the wall to the top cap he sensed the ladder move and twist, and instinctively grabbed back to the wall in an attempt to steady himself. As the ladder fell to the left toward the fixtures, he fell against the wall behind him and then to the floor onto his head and shoulder, sustaining severe personal injury.

DISCUSSION

Witness Testimony

Although he had some ladder experience, Mr. Walker admits that he was not comfortable climbing ladders. The school had a "rickety" wooden ladder that he refused to climb. So the maintenance supervisor (J.R. Hamby) gave he and Mark Jarnigan permission to purchase a couple new ladders, with the understanding they were to buy "cheap" ones, despite the fact that other school employees had heavier duty ladders at their disposal. With required size and minimal expense as their primary criteria, they selected and purchased an 8-ft Werner and the 6-ft subject ladder at Morgan Pro Hardware, a few months prior to the accident. Mr. Walker estimates having used the subject ladder on three other occasions prior to the accident.

The vast majority of Ms. Hudgins' recollection about the accident agrees with that of Mr. Walker stated during his deposition, including the following:

- He climbed one step at a time.
- He climbed to the third or fourth step, lifted a tile and moved it over to the side (above the ceiling).
- The accident occurred after Mr. Walker had completed what he had intended to do from this particular ladder position.
- Ms. Hudgins states that "the ladder just went and Larry fell on top of it."
- The ladder fell to the floor, nearly inline with the toilet. Mr. Walker was lying on his back with his feet toward the door.

Ladder Design / Stability Issues

A ladder only needs three legs to be self-supporting. While a fourth leg can contribute to stability, this is only true if all four legs remain firmly supported. One problem with typical four-legged ladders is their ability to adapt to surfaces that are not perfectly planar. That is why these ladders must possess some degree of flexibility, so that the sections can be adjusted to assure that all legs remain firmly supported. Unfortunately, this inherent flexibility can cause the ladder to shift from 4-point to 3-point leg contact despite a user acting in an otherwise cautious and reasonable manner. The result is a ladder that is now capable of rocking toward the unsupported leg and begin walking, resulting in an unexpected instability that can lead to a user losing their balance and falling.

Design Alternatives

Also included in the test were design alternatives to the typical 4-legged stepladder. First is the Platform Stepladder (or simply Platform Ladder, specifically the Werner P6204). Although much like a typical stepladder, a six-foot platform ladder has no 5th step, has a slightly smaller top, and has built-in platform extending behind the fourth step. As far as walking is concerned, this design has a two-fold advantage over the typical stepladder:

a) It is inherently more resistant to twisting;
b) It enables a more even front-to-back distribution of the user's weight at the highest permissible level, which virtually eliminates walking.

In addition to these advantages, it also lacks a fifth step, thus removing the temptation for a user to stand one foot higher than he is permitted.

Another design alternative evaluated was the Tripod Stepladder (or Tripod Ladder, specifically the Werner FTP6206 and Little Giant 12580). A similar design of these has been used for decades as what was more commonly referred to as an Orchard Ladder, known for its ability to provide a reliable, stable climbing system even on uneven ground. However, manufacturers realize the benefits that three-legged ladders possess over the typical four-legged ladder and have been marketing them to contractors. One manufacturer, Werner Company, had been advertising this design as an improvement over the typical stepladder. An excerpt from that literature (see attached) reads as follows:

> *"Tripod stepladders give you some unique advantages compared to a typical stepladder. With only 3 legs this ladder is more stable than a four-legged*

stepladder. There is no rocking and no walking even on uneven or out of level surfaces. "

Although the Davidson catalog provided in discovery does not identify a tripod ladder, their sister company (Louisville Ladder) has marketed tripod ladders for years (currently as the FT1006[1] and formerly as the FT2006[2] and WT2006[3]).

Testing

The less resistant a ladder is to twisting (racking), the more prone it is to become unstable while in use and begin rocking and walking. One measure of this resistance is the ANSI Racking Test. While beneficial in that it does put a limitation on the degree of flexibility, the ANSI Rationale Document written for the standard does not justify the basis for the lateral deflection limit of 16 inches for ladders like the subject ladder under a load of just six pounds; nor does the Rationale Document justify why lighter duty ladders should be permitted to be more flexible (and thus more prone to walking) than heavier duty ladders.

In an attempt to better quantify how resistance to twisting equates to resistance to walking, I have developed a test called the Induced Walking Test. Details of the test are as follows:

1. Ladder is opened and locked, placed upon a smooth, level cement floor with all feet firmly supported.
2. A 200-lb. dead load is applied to the 4th step from the bottom of the ladder.
3. A sideward lateral pulling force is gradually applied to one front rail at the level of the 4th step, parallel with the floor.
4. The force is applied until the opposite side legs are off of the ground and the opposite side of the ladder has stopped shifting forward.
5. The force is then slowly released, and the condition of the ladder is observed, noting specifically if any of the legs remain off of the floor.
6. The gap under any unsupported leg is then measured.

Induced Walking Test

Manufacturer	Model	Material	Duty Rating	Pull Force	Gap under leg
Davidson	W-2316-06S	Aluminum	200 lbs.	----- *	----- *
Davidson	W-2212-06S	Aluminum	225 lbs.	35.6 lbs.	4.12"
Werner	FS206	Fiberglass	225 lbs.	43.5 lbs.	2.75"
Werner	6206	Fiberglass	300 lbs.	48.9 lbs.	1.38"
Werner	P6204**	Fiberglass	300 lbs.	59.3 lbs.	<0.01"
Werner	FTP6206	Fiberglass	300 lbs.	80.7 lbs.	0"
Little Giant	12580	Fiberglass	300 lbs.	57.2 lbs.	0.18"***

* Step 4 not completed. Exceptional distortion of rear rail noted under pull force load

** Dead weight applied to first segment of platform, otherwise tested in same manner.

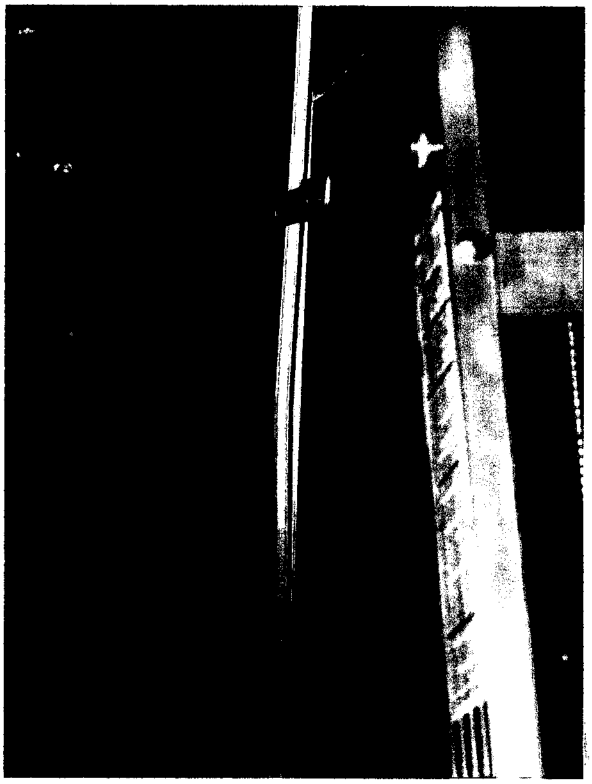
*** Initial gap upon release of side force, but reduced to zero upon subsequent weight shift, thus re-stabilizing ladder

[1] http://www.louisvilleladder.com/product_info.php?cPath=86_87&products_id=64

[2] 2001 Louisville Ladder Full Line Catalog 2001, page 14

[3] 2001 Louisville Ladder Full Line Catalog 2001, page 33

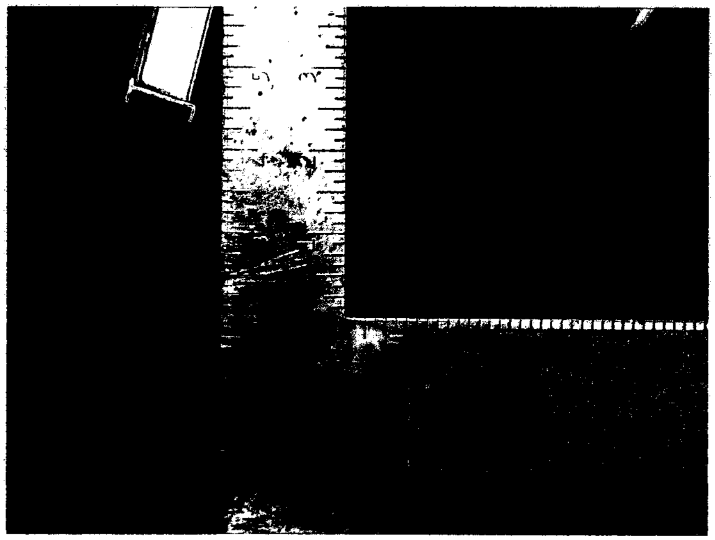
When this test was conducted on an exemplar of the subject model, flexure of the ladder was so severe and the stress on the rear leg so great that step 4 could not be fully realized. See photos below.



Therefore, additional testing was conducted at ½ the normal dead load on a new exemplar and three other ladders so that a comparison could be performed. Results of those tests are as follows:

Induced Walking Test (100 lb. Dead Load)

Manufacturer	Model	Material	Duty Rating	Pull Force	Gap under leg
Davidson	W-2316-06S	Aluminum	200 lbs.	19.6 lbs.	4.18"
Davidson	W-2212-06S	Aluminum	225 lbs.	21.1 lbs.	3.53"
Werner	FS206	Fiberglass	225 lbs.	23.5 lbs.	1.69"
Werner	6206	Fiberglass	300 lbs.	27.6 lbs.	0.78"



All results demonstrate that ladders with higher load ratings (and thus greater resistance to twisting) were less prone to developing gaps beneath one of the legs, which is the characteristic that precipitates ladder walking. Furthermore, platform ladders and tripod ladders substantially reduce or eliminate ladder walking, which is consistent with the performance claims of Werner advertising.

Other Resources

Every year there are roughly 180,000 emergency-room visits and 150 deaths associated with household ladder use. And while human error may explain some of these problems, Consumer Reports notes in their recent report that lax safety standards and questionable designs may also play a role.[4]

Approximately thirty years ago ANSI was challenged by the Consumer Products Safety Commission (CPSC) to reevaluate ladder safety standards in order to address increasing numbers of ladder accidents as perceived by the regulatory agency. Focus groups sought input from nationally and internationally recognized authorities, as well as from the everyday users of ladders. Common criticisms of ladders, such as general stability, excessive racking and walking were visited.[5]

Simultaneously and independently, the CPSC undertook an initial testing program involving static and dynamic ladder testing at Case Western Reserve University. They identified several important factors relative to ladder stability, which included: Width of the ladder base, stiffness (particularly racking) and weight.[6]

The September 2006 issue of Consumer Reports magazine featured an article about ladders in which they acknowledged this very same problem:

> *"**Some (stepladders) walked and wiggled.** Even the most stable stepladders twisted enough for their feet to 'walk' slightly when we stood on them and simulated the twisting and weight-shifting typical when painting or sanding."*

The article also named one particular model that was especially susceptible to this problem:

> *"The Davidson W-2212-06S tipped and swayed more than others of the same kind."*

This model, which received the poorest rating (for this phenomenon) of all ladders listed in the article, was coincidentally a more "heavy duty" version of the ladder Mr. Walker was using.

Consumer Reports went on to state:

> *"TOUGHER STANDARDS (are) NEEDED... Harold Stillman, who chaired the ANSI (American National Standards Institute) task force that most extensively*

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[4] ConsumerReports.org, Consumer Reports Rates 13 Ladders "Not Acceptable" for Safety Risks, September 2006

[5] Gordon Lemke et al. Rationales for ANSI A14.1-1981 (Wood Ladders), A14.2-1981 (Metals Ladders), and A14.5-1981 (Reinforced Plastic Ladders) Safety Requirements for Portable Ladders, October 31, 1983

[6] Rationales, p. 24

revised ladder standards, notes that side-stability tests haven't been substantially updated since 1980. 'The tests provide an easy out for manufacturers--they can stick with old designs that easily pass.' "

The article further stated that:

"Consumers Union, publisher of Consumer Reports, *believes that meeting ladder safety standards should be mandatory ... and should include updated tests."*

OPINION

Based upon my educational background and work experience within the ladder industry, as well as my review of facts in this matter, I offer the following opinions within a reasonable degree of engineering and scientific certainty.

<u>Use Analysis</u>

Mr. Walker was approximately 5'8" tall and 220 lbs. at the time of the accident. At that height, he should have been able to adequately inspect the area above the tiles without climbing beyond the highest permissible step. Although his weight did exceed the duty rating of the ladder, he still would have been afforded a factor of safety in excess of 3.6, which exceeds the 3.3 safety factor ANSI A14.2 specifies for ladders of other duty ratings.

<u>Alleged Conflicts in Fact Testimony</u>

Although most of Ms. Hudgins testimony confirms Mr. Walker's account of the accident, a couple elements of her recollection appear inconsistent with his:

- She felt the ladder was positioned as if Mr. Walker would have been facing the toilet as he climbed.
- The ladder itself came together and slid under him. It didn't go to the side, it went straight forward, and was closed following the accident.

It is not realistic to presume that the sections came together "straight forward" unless the spreaders were not locked and the ladder in a nearly folded orientation while upright. Certainly the nature of the damage to the spreaders following the accident proves that this was not the case at the time. It is also for that reason that Mr. Walker could not have had the ladder positioned so that it faced the toilet (as Mr. Walker climbed) prior to it falling in that direction. Therefore, these details of Ms. Hudgins' recollection have been dismissed as inaccurate.

<u>Compliance with Instructions</u>

As a person not particularly comfortable on ladders, Mr. Walker exercised exceptional care whenever faced with using one. At the time of the accident, he was using this ladder in accordance with the instructions, in that he:

- Made sure the ladder was fully opened and the spreaders were locked,
- Set all four feet on a firm level surface,
- Made sure spreaders were locked and ladder was stable before climbing,
- Faced ladder as he climbed, using both hands to maintain a firm grip,
- Kept his body centered between the side rails,
- Did not overreach,
- Did not climb higher than permitted,

- Was not pushing or pulling off to the side of the ladder, and Did not intentionally walk or shift the ladder while on it.

Ladder Damage

Most of the damage exhibited in the ladder's current condition is due to Mr. Walker's body having struck it after it had already fallen over. However, of particular interest is some damage exhibited in the rear rail of the subject ladder in that it is mimicked by damage to the rear rail of the exemplar ladder following the Induced Walking Test. This would indicate that the accident ladder was subjected to the same kind of torsional loading during the accident that the exemplar ladder experienced during the Induced Walking Test. More specifically, this supports a conclusion that the accident ladder walked and the rail became damaged prior to the ladder falling and Mr. Walker's falling body striking a portion of it.

Cost-Conscious Ladder Industry

The aluminum stepladder market is extremely competitive. Manufacturers are taking advantage of every opportunity to cut costs wherever possible. Although the cost differential information for between the various generations of type III aluminum stepladders is available at Davidson, they have not provided this information in discovery. When confronted with questions about why this design change was implemented, Lori Bremick suggested that it may have been one to make the ladder more appealing to customers. From my experience in the ladder industry, this is another way of saying "The stores who buy our products find cheaper prices more appealing." Don Gibson suggested that making ladders lighter makes them easier to carry around. Although true in some sense, if the weight reduction were even ½ lb., that makes little difference on a ladder that weighs only 12 lbs. to begin with. It should also be noted that reductions in weight have been shown to reduce ladder stability.

Davidson Design Comparisons

Despite our requests, Davidson has failed to disclose how their reduction in rail size (relative to a predecessor model) affected key performance criteria, namely performance in the ANSI Racking Test. They have only gone as far as to state that the subject design was still within the sixteen-inch allowable lateral deflection. As the former Director/Vice President of Engineering at Louisville Ladder Group (LLG), Don Gibson believes that the racking test is adequate to test the racking issue with ladders yet he has no idea what the basis was for the limitation amounts outlined in the code nor has he or anyone else at LLG ever tried to determine it. Despite the lack of disclosure of detailed testing data by Davidson for predecessor models, a reduction in rail size (and weight) would almost certainly have resulted in a reduction of product strength and rigidity, including reduced performance in the Racking Test.

Manufacturer's Responsibility

A general tenet of human factors design is that safety should be ensured through design of the system. If the potential hazard cannot be designed out, then it should be guarded against. If guarding against the hazard is not possible, then an adequate warning system should be developed.[7]

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[7] Wendy A. Rogers, Nina Lamson, Gabriel K. Rousseau, Warning Research: An Integrative Perspective, Human Factors, Vol.42, No. 1, Spring 2000, pp. 102-139, Human Factors and Ergonomics Society

A warning should be a reasonable attempt to provide risk information to all those who might foreseeably be injured and in a form that could provide them with a fair opportunity to avoid harm. It should appropriately identify specific hazards, the magnitude of the associated risks, and describe the means by which a person could avoid danger.[8]

Davidson recognized that some people do intentionally walk ladders to avoid having to step down off of them, move them and then climb back up to resume work. In fact, the 26th item of the 32 listed on the instruction label tells a user not to intentionally walk a ladder. However, Davidson has made no attempt to inform users that ladders can begin to rock and walk simply in response to a user's actions, even if the user is otherwise fully compliant with all instructions and warnings posted. Furthermore, since Mr. Walker is amongst the millions of Americans who is functionally illiterate[9], all the more reason that Davidson should have addressed this deficiency in its initial design.

Summary

Mr. Walker was using this ladder in a reasonable manner. He exercised reasonable care in his set up and use of the ladder. With the exception of his weight being slightly over the posted limit, he was otherwise completely compliant with the posted placards. This accident was due to the negligence of Davidson in that they knowingly designed, manufactured and placed into the stream of commerce ladders that were prone to become unstable and collapse despite being used in a reasonable manner. They ignored design alternatives that would have eliminated or substantially reduced this problem and failed to adequately warn users about the walking hazard.

SUPPLEMENTAL REPORTS

Should additional information become available, I would appreciate the right to supplement this report.

TRIAL EXHIBITS

At the time of trial, I anticipate using the subject ladder, exemplar ladders, various alternative designs, scale drawings and photos and video shot during my inspection in support of my conclusions. I may also prepare a video depicting the performance deficiencies of this product along with comparative testing between the exemplar

Please let me know if I can be of further assistance in this matter.

[8] George A. Peters, Barbara J. Peters, Warnings, Instructions and Technical Communications (Tucson: Lawyers & Judges Publishing Co., Inc. 1999), p. 4

[9] Author Unknown, Illiteracy: The Downfall of American Society, Published by Education-Portal.com with statistics obtained from the National Institute for Literacy, National Center for Adult Literacy, The Literacy Company & The US Census Bureau, July 24, 2007

Sincerely,

Stanley A. Kiska, PE
President

Bibliography

1. Amazon.com Internet advertisement, Tools & Hardware: Werner model FTP6208 Fiberglass Tripod Ladder, From the manufacturer, Version 1/28/2005

2. Consumer Reports.org, *CONSUMER REPORTS* RATES 13 LADDERS "NOT ACCEPTABLE" FOR SAFETY RISKS, September 2006

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5. George A. Peters, Barbara J. Peters, Warnings, Instructions and Technical Communications (Tuscon: Lawyers & Judges Publishing Co., Inc. 1999),

6. Wendy A. Rogers, Nina Lamson, Gabriel K. Rousseau, Warning Research: An Integrative Perspective, Human Factors, Vol.42, No. 1, Spring 2000, pp. 102-139, Human Factors and Ergonomics Society

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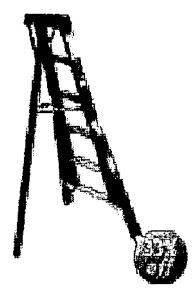
Werner Model FTP6206 6' Fiberglass Tripod Ladder

Other products by Werner



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Features:

- 6 foot total height with a highest standing level of 4 feet, weighs 23 pounds

Single Lever Discharge Control

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- Tripod ladders offer added stability when surfaces are uneven or out of level
- Can not be "walked" like a four legged ladder for added safety
- The single leg in the back can span obstructions better than a traditional step ladder
- Ideal for use picking fruit or trimming trees because it is still solid on uneven ground and can be positioned closer

Manufacturers, merchants, and enthusiasts: Submit a product manual for this item.

Amazon.com Sales Rank in Tools & Hardware: #4,596
Shipping: Shipping rates and policies
Shipping: Currently, item can be shipped only within the U.S.
Shipping weight: 23.00 pounds.
ASIN: B0002MH1J4
Item model number: FTP6206
Date first available at Amazon: July 13, 2004

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Product Description

From the Manufacturer

Werner Model FTP6206 is a 6-foot Type 1A 300-pound duty rating fiberglass tripod stepladder. Tripod stepladders give you some unique advantages compared to a typical stepladder. With only 3 legs this ladder is more stable than a four legged stepladder. There is no rocking and no walking even on uneven or out of level surfaces. The single rear leg can span over obstructions better than the rear section of a typical stepladder including being placed through roughed in walls. A four legged stepladder cannot be placed close to a wall or obstruction without being placed sideways, perpendicular to the work surface, a tripod ladder can be placed close to the wall but still at a comfortable angle to the work surface. Tripod ladders are ideal for working around trees or poles and around corners. Features include double riveted slip resistant steps; replaceable, slip resistant feet and a convenient Tool-Tra-Top with a drill holster and paint can holder. The highest standing level on this or any stepladder is 2 feet from the top.

Product Description HEAVY DUTY FIBERGLASS TRIPOD STEPLADDER Tool-Tra-Top w/ drill holster/paint can holder Fully braced front section Easy close and carry front spreaders Traction-Tred steps for slip-resistance Wear resistant aluminum outrigger Replaceable riveted, slip-resistant foot pad 300 lb. load capacity, type IA duty rating FTP6206 6 TRIPOD LADDER 6 Ft.

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October 24, 2008

W. Holt Smith
209 Tellico Street North
Madisonville, TN 37354

Re: Kiska Report in the matter of Larry Walker vs. Louisville Ladder

Dear Mr. Smith,

It has come to my attention that typographical errors exist within the tabulated data presented in my report of October 17, 2008. Each table refers to two different Davidson (LLG) aluminum stepladder models used in testing. The errors and corrections are detailed as follows:

Models erroneously named in the report:		**Should have been listed as**:
W-2316-06S	→	D-2316-06S
W-2212-06S	→	D-2212-06S

With these corrections, the corrected tables are as follows:

Induced Walking Test

Manufacturer	Model	Material	Duty Rating	Pull Force	Gap under leg
Davidson	D-2316-06S	Aluminum	200 lbs.	----- *	----- *
Davidson	D-2212-06S	Aluminum	225 lbs.	35.6 lbs.	4.12"
Werner	FS206	Fiberglass	225 lbs.	43.5 lbs.	2.75"
Werner	6206	Fiberglass	300 lbs.	48.9 lbs.	1.38"
Werner	P6204**	Fiberglass	300 lbs.	59.3 lbs.	<0.01"
Werner	FTP6206	Fiberglass	300 lbs.	80.7 lbs.	0"
Little Giant	12580	Fiberglass	300 lbs.	57.2 lbs.	0.18"***

* Step 4 not completed. Exceptional distortion of rear rail noted under pull force load
** Dead weight applied to first segment of platform, otherwise tested in same manner.
*** Initial gap upon release of side force, but reduced to zero upon subsequent weight shift, thus re-stabilizing ladder

Induced Walking Test (100 lb. Dead Load)

Manufacturer	Model	Material	Duty Rating	Pull Force	Gap under leg
Davidson	D-2316-06S	Aluminum	200 lbs.	19.6 lbs.	4.18"
Davidson	D-2212-06S	Aluminum	225 lbs.	21.1 lbs.	3.53"
Werner	FS206	Fiberglass	225 lbs.	23.5 lbs.	1.69"
Werner	6206	Fiberglass	300 lbs.	27.6 lbs.	0.78"

Please let me know if you have any questions or if I can be of further assistance in this matter.

Sincerely,

Stanley A. Kiska, PE
President

120 Shady Lane
Fayetteville, NY 13066

INTEGRA
ENGINEERING, P.C.

Office: 315-637-4723
Fax: 315-637-5521

December 3, 2008

W. Holt Smith
209 Tellico Street North
Madisonville, TN 37354

Re: Larry Walker vs. Louisville Ladder

Dear Mr. Smith,

In addition to the testing noted in my report dated October 17, 2008, I have since conducted an Induced Walking Test on an exemplar Werner type III aluminum stepladder and a Cosco type II aluminum stepladder for comparison purposes with an exemplar of the subject model in this matter (see attached photos). As with previous testing in this matter, this test was also videotaped, a copy of which will be sent to you once compiled and written to DVD format.

Details of the testing protocol are as follows:

1. The ladder was opened and locked, placed upon a smooth, level cement floor with all feet firmly supported.
2. Four 25-lb steel plates (used as a dead load) were placed upon the centered on the highest allowable standing level (4^{th} from ground level).
3. A sideward lateral pulling force was gradually applied to one front rail at the highest allowable standing level, parallel with the floor, perpendicular to the front section of the ladder.
4. The lateral pulling force was applied until the feet of the opposite side rails were slightly off of the ground and there was no long any forward movement of those legs (i.e. a condition of equilibrium was reached).
5. The force was then slowly released, and the condition of the ladder observed, noting specifically if any of the legs remain off of the floor.
6. The gap under any unsupported leg was then noted.

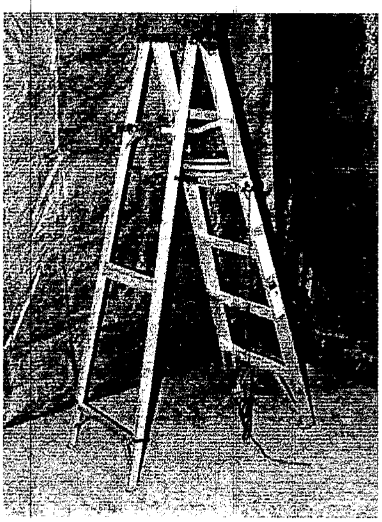
Test results are as follows:

Induced Walking Test

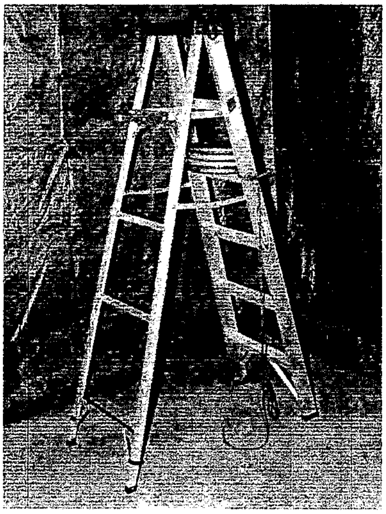
Manufacturer	Model	Ladder Wt.	Duty Rating	Pull Force	Gap under leg
Davidson	D-2316-06S	11.6 lbs.	200 lbs.	19.4 lbs.	2.69"
Werner	356	11.9 lbs.	200 lbs.	20.6 lbs.	1.63"
Cosco	20-682 GAB	14.5 lbs.	225 lbs.	25.1 lbs.	~0"

Racking and walking of the Werner ladder was approximately 40% less severe than that of the subject model. Performance of the Cosco model was especially impressively in this test, with no measurable deflection beneath any foot upon release of the side load.

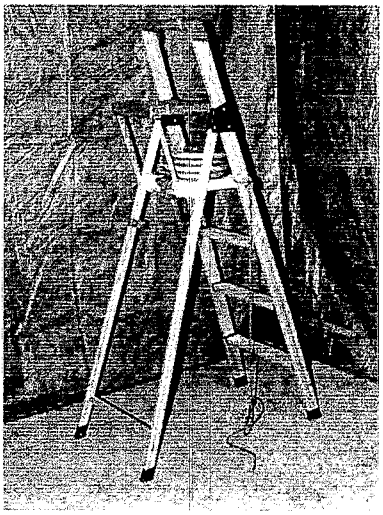
Obviously the effect of additional material in the ladder is beneficial, both from the standpoint of required force to tip and resistance to racking and walking. The Cosco model benefits even further, in that its design incorporates a platform at the highest standing level and closed-section side rails, both of which contribute to making ladders more resistant to racking and destabilizing (shifting from four-foot to three-foot contact) while in use.



Davidson
D-2316-06S



Werner
356



Cosco
20-682 GAB

Please let me know if I can be of further assistance in this matter.

Sincerely,

Stanley A. Kiska, PE
President